menting along the lines indicated above, has found a gum varnish which he believes is identical with that used by the Cremona makers.

The general appearance of this new varnish is so characteristic that the eye can not discriminate when placed side by side with the original. The chief reason for this is that the color is natural to the gum, and is not added to it, consequently we get no stain effect on the wood, such as we always do when artificially colored varnish is used. Secondly, the transparency is so perfect that we get two reflections, one from the upper and one from the under surface of the varnish. Thirdly, the color bleaches in the sun, to "Amati" yellow, it being known that this great maker dried his violins in the sun, whereas Stradivarius dried his to red in the shade of an attic, which he built on the roof of his home, open on two sides to the atmosphere. The new varnish chips off the wood, on rough usage, as does the old, and in texture and hardness they are identical. The effect on the tone of an instrument is very marked. When covered by this material all harshness disappears, being replaced by what is known among musicians as the "Italian tone."

The supposition for the explanation of this last effect is that the varnish is so similar in elasticity and other properties to the wood of the instrument, that it exerts no influence thereon whatever, leaving the violin to expand or contract, under differences of atmospheric temperature and moisture, just as though it were not varnished at all, thus differing from all other varnish, whether of spirit or of oil.

In order to give this varnish a thorough practical test twelve common trade violins "in the white," of standard models, were procured from four different makers (three from each), and varnished and strung up. Many times were duplicate pairs of these violins put in a double case and submitted to prominent professional violinists in order that they might select the better of the two, if possible. In no case has a definite decision yet been reached. This is taken to mean that the tone is so pure that the musical ear can find no point on which to offer any adverse criticism. Comparisons actually made with some of the old Cremona violins prove very flattering to the new varnish, the tone being not so "stale" as in the old instruments.

FRANK DELLA TORRE

BALTIMORE, MD.,
February, 1908

QUOTATIONS

MERCY TO MANKIND

SURGERY in England was set back so far by the successful crusade against vivisection that probably many thousands of men, women and children have suffered days of agony for every minute of discomfort saved to any animal. The merits of the discussion are almost pitifully clear. The proposed laws will never reach the irresponsible experimenter, even if he is not entirely mythical. All they can do is to handicap the hospitals and the expert work. The present agitators are of a kind with them who sneered at Pasteur as "an obscure druggist"; opposed Harvey's experiments about the circulation of the blood, those of Galen fifteen centuries earlier, and those of Lister in our day. To show where real science stands, we may observe that the men who have protested against the present outbreak of ignorant sympathy include, among many others, Dr. Weir Mitchell, Dr. Janeway, Dr. W. W. Keen, Dr. Osler, and leading professors of anatomy, physiology, surgery, physiological chemistry, biology, bacteriology, zoology and medicine, in Harvard, Columbia, Johns Hopkins, Yale, the University of Michigan, the University of Pennsylvania, Rush Medical College, Dartmouth, the Massachusetts Institute of Technology, Georgetown University and the University of Chicago. Already there is punishment provided for experiments improperly performed. The new laws are an attempt to give ignorance a whip to hold over science. The view which would be taken of humane research by these animal-defenders is shown clearly enough by their special attack on the experiments on cats now being made in the Rockefeller Institute, designed to lead to the mastery of many serious kidney troubles. One of their gruesome pictures is called "The Dog has no Chance."

Apparently these excited individuals wish a fair combat between the operator and the dog.

Regarding the present agitation in the United States, some of our readers object to our speaking of the factitious side. As far as we are able, however, we print the most important news in whatever direction it may strike. Many people genuinely oppose vivisection, but few, if any, of them have the least standing in the scientific world. The New York County Medical Society was instrumental in having the *Herald* legally prevented from carrying certain medical advertising, and that paper seldom forgets a grudge. Moreover, this agitation happens to be extremely good business. The most profitable part of a daily paper is the drygoods advertising; women are the buyers; and in this howl about our dumb friends there is a mighty feminine appeal, especially to those women who are unfortunate enough to have no children. It is more vivid to proclaim in a half-inch headline, "See the bloody knife. It cuts. It cuts," than it is to talk about a reduced death-rate. Only two qualities are needed to conduct a first-class crusade, like the *Herald's* present picturesque effort—a slight knowledge of mob psychology and a short memory. The *Herald* may have forgotten that in 1895 it espoused the cause of antitoxin, started a fund for its popularization with a gift of $1,000, and, with its brass band of publicity, induced the community to give $7,000 more. To be sure, the generosity of the *Herald* flagged at this point, and a representative of the warm-hearted newspaper asked if the original $1,000 could not be returned!—*Collier's Weekly.*

CURRENT NOTES ON METEOROLOGY AND CLIMATOLOGY

MONTHLY WEATHER REVIEW

Recent issues of the *Monthly Weather Review* (U. S. Weather Bureau, Washington, D. C.) have contained many contributions of general scientific interest. Among these, the following are selected for special mention. In the September number (dated December 16) we find, under the title "On Atmospheric Currents at Very Great Altitudes," a discussion, by Professor C. C. Trowbridge, of the atmospheric currents which are shown to exist in the extreme upper regions of the atmosphere by the observed drifting of the luminous trains formed by meteors. One method for determining the height of the atmosphere is by means of meteors. This paper gives many facts of interest, and is illustrated. "Studies of Frost and Ice Crystals," by W. A. Bentley. A continuation of a paper in the August *Review*. Mr. Bentley has made a life-long study of snow crystals, and presents details of extraordinary accuracy. "Colliery Explosions and Barometric Pressure." Note on the fact, many years ago pointed out by the English Commission on Prevention of Explosions in Collieries, that the combustible gases escape most freely into mines when the external pressure is falling and lowest.

The *Monthly Weather Review* for October, 1907 (dated January 21, 1908), contains the following contributions: "Highest Kite Flight at Mount Weather, Va." On October 3, 1907, the altitude above sea level reached by the leading kite and the meteorograph is believed to be the greatest yet attained in any kite ascension, viz., 23,110 feet. "Interconversion of Centigrade and Fahrenheit Scales"; formulæ suggested by F. K. Ferguson, superintendent of schools, Paola, Kansas, as follows:

$$C = 5/9\ (F + 40) - 40,$$

$$F = 9/5\ (C + 40) - 40.$$

"Studies of Frost and Ice Crystals," by Wilson A. Bentley. "Meteorological Stations in Southern Nigeria," by C. F. Talman. Mr. Talman has, for some time past, performed a very useful service to climatologists in publications of the meteorological stations in various countries concerning whose climates we as yet know but little. In the present article he gives an account of the development of meteorological observations in southern Nigeria, with a map showing the location of the stations. "The Lagging of Temperature Changes at Great Heights behind those at the Earth's Surface, and Types of Pressure Changes at Different Levels," by H. H. Clayton. This is a preliminary report upon some results derived from a study of the records obtained with